CLAIMS

What is claimed is:

1. A method for producing white light emission by means of the secondary light excitation, wherein the light emitting component for generating violet or ultra violet light is employed to generate violet or ultra violet light with wavelength between 360 ~ 420 nm which excites the first blue phosphor to emit the light of the first spectrum, and the light of the first spectrum excites the second yellow phosphor to emit the light of the secondary spectrum, then the light of the first spectrum blends with the light of the secondary spectrum to produce white light emission.

2. The method as described in claim 1, wherein the light emitting component used as light source is violet or ultra violet Light Emitting Diode (LED).

3. The method as described in claim 1, wherein the light emitting component used as light source is violet or ultra violet Laser Diode (LD).

4. The method as described in claim 1, wherein the color temperature and color rendering effect of white light may be adjusted by adjusting the weight proportion of blue phosphor and yellow phosphor.

5. The method as described in claim 1, wherein the light source of different colors may be obtained by adding proper amount of red phosphor and green phosphor into the packing layer.

6. A white light emitting component for producing white light emission by means of secondary light excitation comprising a LED chip which emits violet or ultra violet light with wavelength between 360 ~ 420 nm and a resin packing layer coated on the LED chip, wherein the resin packing layer is a mixture of packing material, blue phosphor and yellow phosphor, and the blue phosphor is selected from the group consisting of $Sr_{10}(PO_4)_6Cl_{12}:Eu^{2+}$, $Ca_{10}(PO_4)_6Cl_{12}:Eu^{2+}$, $Ba_{10}(PO_4)_6Cl_{12}:Eu^{2+}$, $Sr_5(PO_4)_3Cl:Eu^{2+}$ and $(BaMgAl_{10}O_{17}:Eu^{2+},Mn^{2+})$, and the yellow phosphor is selected from the group consisting of $Y_3Al_5O_{12}:Ce^{3+}$, $Y_3Ga_5O_{12}:Ce^{3+}$, $Gd_3Al_5O_{12}:Ce^{3+}$, and $Gd_3Ga_5O_{12}:Ce^{3+}$.

7. The while light emitting component as described in claim 6, wherein the resin packing layer further contains green phosphor, and the green phosphor is selected from the group consisting of $(BaMg_2Al_{16}O_{27}:Eu^{2+},Mn^{2+})$, $(YBO_3:Ce^{3+},Tb^{3+})$, $SrAl_2S_4:Eu^{2+}$, $BaAl_2S_4:Eu^{2+}$, $CaAl_2S_4:Eu^{2+}$, $SrGa_2S_4:Eu^{2+}$, $BaGa_2S_4:Eu^{2+}$, and

$CaGa_2S_4:Eu^{2+}$.

8. The white light emitting semiconductor component as described in claim 6, wherein the resin packing layer further contains red phosphor, and the red phosphor is selected from the group consisting of ($Y_2O_2S:Eu^{2+},Bi^{3+}$), ($YVO_4:Eu^{2+},Bi^{3+}$), $SrS:Eu^{2+}$, $SrY_2S_4:Eu^{2+}$, $CaLaS_4:Ce^{3+}$, $CaS:Eu^{2+}$, and $SrS:Eu^{2+}$.

9. The white light emitting semiconductor component as described in claim 7, wherein the resin packing layer further contains red phosphor, and the red phosphor is selected from the group consisting of ($Y_2O_2S:Eu^{2+},Bi^{3+}$), ($YVO_4:Eu^{2+},Bi^{3+}$), $SrS:Eu^{2+}$, $SrY_2S_4:Eu^{2+}$, $CaLaS_4:Ce^{3+}$, $CaS:Eu^{2+}$, and $SrS:Eu^{2+}$.

10. The white light emitting semiconductor component as described in claim 8, wherein if the total weight of the packing layer is A; the weight of the packing material is E; the weight of the blue phosphor is B; the weight of the yellow phosphor is Y; the weight of the red phosphor is R; and the weight of the green phosphor is G; then relation between each individual ingredient in weight shall fulfill the following condition:

$E \geqq 50\% A$;
$B+Y+R+G \leqq 50\% A$;
$5\% A \leqq B \leqq 40\% A$;
$5\% A \leqq Y \leqq 40\% A$;
$0.001\% A \leqq R \leqq 20\% A$; and
$0.0001\% A \leqq G \leqq 20\% A$.

11. The white light emitting component as described in claim 9, wherein if the total weight of the packing layer is A; the weight of the packing material is E; the weight of the blue phosphor is B; the weight of the yellow phosphor is Y; the weight of the red phosphor is R; and the weight of the green phosphor is G; then relation between each individual ingredient in weight shall fulfill the following condition:

$E \geqq 50\% A$;
$B+Y+R+G \leqq 50\% A$;
$5\% A \leqq B \leqq 40\% A$;
$5\% A \leqq Y \leqq 40\% A$;
$0.001\% A \leqq R \leqq 20\% A$; and
$0.0001\% A \leqq G \leqq 20\% A$.

12. The white light emitting component as described in claim 8, wherein the resin packing layer has a two-layer laminated structure of which the first coating layer is a mixture of the packing material and the blue phosphor, and is coated on the diode chip, and the second coating layer is a mixture of the packing material, the yellow phosphor, the blue phosphor, the red phosphor and the green phosphor, and is coated on the first coating layer, and if the total weight of the first coating layer is A; the weight of the packing material in the first coating layer is E; and the weight of the blue phosphor in the first coating layer is B; then the relation between each individual ingredient in weight shall fulfill the condition of

$$E \geqq 50\%\ A;\ \text{and}\ 5\%\ A \leqq B \leqq 50\%A;$$

and if the total weight of the second coating layer is X; the weight of the packing material in the second coating layer is E; the weight of the blue phosphor in the second coating layer is B; the weight of the yellow phosphor in the second coating layer is Y; the weight of the red phosphor in the second coating layer is R; and the weight of the green phosphor in the second layer is G; then the relation between each individual ingredient shall fulfill the following condition:

$E \geqq 50\%\ X;$
$B+Y+R+G \leqq 50\%\ X;$
$0\%\ X \leqq B \leqq 5\%\ X;$
$5\%\ X \leqq Y \leqq 50\%\ X;$
$0.001\%\ X \leqq R \leqq 20\%\ X;$ and
$0.0001\%\ X \leqq G \leqq 20\%\ X.$

13. The white light emitting component as described in claim 9, wherein the resin packing layer has a two-layer laminated structure of which the first coating layer is a mixture of the packing material and the blue phosphor, and is coated on the diode chip, and the second coating layer is a mixture of the packing material, the yellow phosphor, the blue phosphor, the red phosphor and the green phosphor, and is coated on the said first coating layer, and if the total weight of the first coating layer is A; the weight of the packing material in the first coating layer is E; and the weight of the blue phosphor in the first coating layer is B; then the relation between each individual ingredient in weight shall fulfill the condition of

$$E \geqq 50\%\ A;\ \text{and}\ 5\%\ A \leqq B \leqq 50\%A;$$

and if the total weight of the second coating layer is X; the weight of the packing material in the second coating layer is E; the weight of the blue phosphor in the second coating layer is B; the weight of the yellow phosphor in the second coating

layer is Y; the weight of the red phosphor in the second coating layer is R; and the weight of the green phosphor in the second layer is G; then the relation between each individual ingredient shall fulfill the following condition:

$E \geqq 50\% X;$
$B+Y+R+G \leqq 50\% X;$
$0\% X \leqq B \leqq 5\% X;$
$5\% X \leqq Y \leqq 50\% X;$
$0.001\% X \leqq R \leqq 20\% X;$ and
$0.0001\% X \leqq G \leqq 20\% X.$

14. The white light emitting component as described in claim 12 wherein a third coating layer made of the packing material is further coated on the second coating layer.

15. The white light emitting component as described in claim 13 wherein a third coating layer made of the packing material is further coated on the second coating layer.